CLAIMS

1. A method of calibrating A/D or D/A converters with a weighted network, said method comprising the steps of:

determining calibration equations between the weights are determined, whereby in an equation a weight is represented as a function of other weights;

assuming fixed values between the weights for one or more ratios between the weight values of two weights; and

determining the remaining weight values by determining and solving the equations with the fixed values of the ratios.

2. The method of Claim 1, wherein at least one ratio is a ratio between the weight values of a pre-set number of weights with the lowest weight values.

3. The method of Claim 1 wherein the step of assuming fixed values comprises assuming for at least one pre-set weight, a pre-set weight value and for the remaining weights the weight values are determined by determining and solving the equations with the pre-set weight value.

4. The method of Claim 1, wherein the step of determining calibration equations comprises at least one determination of an equation carried out several times and the coefficients of the equation being calculated by averaging the determinations.

5. The calibration method according to Claim 4, wherein the step of determining calibration equations comprises carrying out the determination 2^n times, whereby n is a natural number.

6. The method of Claim 1 further comprising a step of enabling or disabling each weight, wherein at least one equation is determined twice with the weights being enabled or disenabled complementary between the two determinations.

7. The method of Claim 6 further comprising a step of determining from the equations essentially complementary to one another through subtraction the at least one equation with an eliminated offset.

8. The method of Claim 7 further comprising a step of enabling or disenabling a weight based upon a binary code value, whereby each place of the binary code value which indicates for a corresponding weight whether the weight is enabled or disenabled.

9. The method of Claim 8 further comprising a step of determining at least one equation by a first binary code being converted into an equivalent binary code, whose sum of the weight values of the weights enabled is equal to the sum of the weight values of the weights enabled according to the first binary code, and the equation is determined by comparing the first binary code with the equivalent binary code.

10. The method of Claim 8, wherein the step of determining the equivalent binary code comprising :

(a) determining the first binary code, so that a bit value 0 or 1 is assigned to a specific weight and a bit value 1 or 0 complementary to this is assigned to all weights with a lower weight value, whereby 0 corresponds to a disenabled weight and 1 corresponds to an enabled weight;

(b) forming a second binary code by forming the complementary binary code of the first binary code;

(c) forming a third binary code by modifying the bit values of the second binary code under the constraint that the sum of the weight values of the weights enabled according to the third binary code apart from an offset is equal to the sum of the weight values of the enabled weights according to the second binary code;

(d) forming a fourth binary code by forming the complementary binary code of the third binary code; and

(e) forming the equivalent binary code by modifying the bit values of the fourth binary code under the constraint that the sum of the weight values of the weights enabled according to the equivalent binary code apart from an offset is equal to the sum of the weight values of the enabled weights according to the fourth binary code.

11. The method of Claim 9, wherein in step (a) the bit values of the first binary code, which correspond to weights with a greater weight value than that of the specific weight, are set in such a manner that the sum of the weight values of the weights enabled according to the first binary code essentially lies in the center of the range of the possible sums of the weight values of the weights enabled according to an arbitrary binary code.

12. The method of Claim 8, wherein the step of determining the equivalent binary code comprises:

(a) determining a second binary code, so that a bit value 0 or 1 is assigned to a specific weight and a bit value 1 or 0 complementary to this is assigned to all weights with a lower weight value, whereby 0 corresponds to a disenabled weight and 1 corresponds to an enabled weight;

(b) forming a third binary code by modifying the bit values of the second binary code under the constraint that the sum of the weight values of the weights enabled according to the third binary code apart from an offset is equal to the sum of the weight values of the enabled weights according to the second binary code;

(c) forming a fourth binary code by forming the complementary binary code of the third binary code; and

(d) forming the equivalent binary code by modifying the bit values of the fourth binary code under the constraint that the sum of the weight values of the weights enabled according to the equivalent binary code apart from an offset is equal to the sum of the weight values of the enabled weights according to the fourth binary

code, whereby the first binary code is produced by forming the complementary binary code of the second binary code.

13. The method according to Claim 8, wherein the step of determining the equivalent binary code comprises:

(a) determining a second binary code, so that a bit value 0 or 1 is assigned to a specific weight and a bit value 1 or 0 complementary to this is assigned to all weights with a lower weight value, whereby 0 corresponds to a disenabled weight and 1 corresponds to an enabled weight;

(b) forming a third binary code by modifying the bit values of the second binary code under the constraint that the sum of the weight values of the weights enabled according to the third binary code apart from an offset is equal to the sum of the weight values of the enabled weights according to the second binary code;

(c) forming a fourth binary code by forming the complementary binary code of the third binary code; and

(d) forming the equivalent binary code by modifying the bit values of the fourth binary code under the constraint that the sum of the weight values of the weights enabled according to the equivalent binary code apart from an offset is equal to the sum of the weight values of the enabled weights according to the fourth binary code, whereby the equation is determined by comparing the second binary code with the equivalent binary code.

14. The method of Claim 8, wherein a measurement carried out for execution of the method is iterated on the weighted network and the average value of the iterated measurements is evaluated.

15. An A/D or D/A converter having a weighted network comprising:

a control unit provided for calibrating the network and configured in such a manner that for calibration the control unit determines equations between the weights, whereby in an equation a weight is represented as a function of other

weights, and that the control unit solves the equations for determining the weight values of the weights,

wherein the control unit is configured in such a manner that, for at least one ratios between the types of weight of two weights, fixed values are stored and for the remaining weights the weight values are determined by determining and solving the equations with the fixed values of the ratios.

16. The A/D or D/A converter of Claim 15, wherein the control unit is configured in such a manner that, for at least one pre-set weight, a pre-set weight value is stored and for the remaining weights the weight values are determined by determining and solving the equations with the pre-set weight value.

17. The A/D or D/A converter of Claim 15, wherein the control unit is configured in such a manner that at least one determination of an equation is carried out several times and the coefficients of the equation are calculated by averaging the determinations carried out several times.

18. The A/D or D/A converter of Claim 15, whereby each weight is designed to be enabled and disenabled by enabling means,

wherein the control unit is configured in such a manner that at least one equation is determined twice with the weights being enabled or disenabled of complementary between the two determinations, in order to obtain equations essentially complementary to one another and from the two equations essentially complementary to one another at least one equation with an eliminated offset is determined by subtraction.

19. The A/D or D/A converter of claim 15, whereby the control unit enables or disenables each weight in agreement with a corresponding binary code by way of enabling means, whereby each place of the binary code indicates for a corresponding weight whether this weight is enabled or disenabled,

wherein the control unit is configured in such a manner that at least one equation is determined, by a first binary code being converted into an equivalent binary code, whose sum of the weight values of the weights enabled is equal to the sum of the weight values of the enabled weights according to the first binary code and the equation is determined by comparing the first binary code with the equivalent binary code.

20. The A/D or D/A converter of Claim 15, whereby the network has weights with respective weight values, and whereby a control unit is provided for the calibration of the network, which is configured in such a manner that for calibration it determines equations between the weights, whereby in an equation a weight is represented in each case as a function of other weights, whereby the control unit enables or disenables each weight in agreement with a corresponding binary code by way of enabling means, whereby each place of the binary code indicates for a corresponding weight whether this weight is enabled or disenabled,
wherein the control unit is configured in such a manner that an offset of the A/D or D/A converter is calculated, whereby said offset is calculated by a first binary code being converted into a second binary code through modification of the bit values of the first binary code under the constraint that the sum of the weight values of the weights enabled according to the first binary code apart from an offset is equal to the sum of the weight values of the enabled weights according to the second binary code, and that a conversion result is corrected by the amount of the offset determined in this way.